CHAPTER 30



ENGINEMAN (EN)

NAVPERS 18068-30F CH-70

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NAVY ENLISTED OCCUPATIONAL STANDARD

FOR

ENGINEMAN (EN)



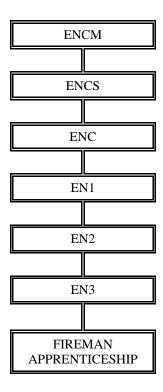
SCOPE OF RATING

<u>Enginemen (EN)</u> control the operation of diesel engines used for ship propulsion and to generate electrical power and align fuel, water, and air piping systems; clean, lubricate, adjust, test, and perform other preventive maintenance on diesel engines, reduction gears, air compressors, hydraulic or pneumatic clutches, steering engines, and controllable pitch propeller systems; repair or overhaul diesel engines, pumps, compressors, heat exchangers, and control devices used with diesel engines and gas turbines; and make entries into and analyze machinery operating records and reports.

This Occupational Standard is to be incorporated in Volume I, Part B, of the Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NAVPERS 18068F) in Chapter 30.

GENERAL INFORMATION

CAREER PATTERN



Normal path of advancement to Chief Warrant Officer and Limited Duty Officer categories can be found in OPNAVINST 1420.1.

For rating entry requirements, refer to MILPERSMAN 1306-618.

SAFETY

The observance of Operational Risk Management (ORM) and proper safety precautions in all areas is an integral part of each billet and the responsibility of every Sailor; therefore, it is a universal requirement for all ratings.

Job Title Diesel Engine Systems Manager

Job Code 003102

Job FamilyNOCShort Title (30 Characters)Short Title (14 Characters)Installation, Maintenance, and RepairTBDDIESEL ENGINE SYS MGRDIESEL SYS MGR

Occupations

<u>Pay Plan</u> <u>Career Field</u> <u>Other Relationships and Rules</u>

Enlisted EN NECs 4206, 4202

Job Description

Diesel Engine Systems Managers provide overall management by reviewing, approving, and managing engine operations and programs aboard Navy ships; manage personnel during the operation and maintenance of main propulsion diesel engine and reduction gears used for ship propulsion and auxiliary machinery, such as: ships service diesel engine generators and oil purifiers; provide guidance and technical knowledge in the maintenance of auxiliary machinery outside of main machinery spaces, such as electro-hydraulic steering engines and elevators, refrigeration plants, air conditioning systems, desalinization plants (distilling plants), and compressed gas producing plants; manage personnel in the alignment process of piping systems for fuel, oil, water, and air; manage the operation of ship main propulsion diesel engine used for ship propulsion and service systems and the operation of ships service diesel engine generators used to produce electrical power; manage personnel responsible for cleaning, adjusting, testing, and the performance of other preventive maintenance on ships main propulsion diesel engine, ships service diesel engine generators, and other auxiliary machinery including electro-hydraulic steering units, elevators, winches, pumps and associated valves; provide guidance and technical knowledge in the repair and replacement of valves, pumps, heat exchangers, compressors, and hydraulic or pneumatic control devices; and manage and analyze machinery operating records and reports. Managers have mastered a trade or skill and are qualified to mentor Diesel Engine Systems Technicians and Diesel Engine Systems Maintainers.

DoD Relationship O*NET Relationship

 Group Title
 DoD Code
 Occupation Title
 SOC Code
 Job Family

 Auxiliaries
 165200
 First Line Supervisors of Mechanics, Installers, and Repair Occupations Repairers
 49-1011.00
 Installation, Maintenance, and Repair Occupations

Skills **Abilities** Reading Comprehension Written Comprehension Writing Written Expression Critical Thinking Deductive Reasoning Systems Analysis Information Ordering Systems Evaluation Category Flexibility Manual Dexterity Monitoring Coordination Problem Sensitivity Equipment Maintenance Inductive Reasoning **Equipment Selection** Mathematical Reasoning Judgment and Decision Making Oral Comprehension

ENGINEERING MANAGEMENT

Paygrade	Task Type	Task Statements
E7	CORE	Evaluate engineering management programs
E7	CORE	Maintain Diesel Readiness Systems (DRS)
E6	CORE	Maintain engineering records and logs
E7	NON-CORE	Maintain environmental pollution control programs
E5	NON-CORE	Prepare Current Ship's Maintenance Project (CSMP) input
E5	CORE	Prepare fuel, oil, and water reports
E7	CORE	Prepare shipwide full power and economy trials
E7	CORE	Validate Casualty Reports (CASREP)
E6	CORE	Validate Engineering Operational Sequencing System (EOSS) manuals
E6	CORE	Validate engineering records and logs

MECHANICAL MAINTENANCE

Paygrade	Task Type	Task Statements
E4	CORE	Perform preventative maintenance on Civil Engineering Support Equipment (CESE)
E4	CORE	Repair Civil Engineering Support Equipment (CESE)
E5	CORE	Troubleshoot Civil Engineering Support Equipment (CESE)

QUALITY ASSURANCE

Paygrade	Task Type	<u>Task Statements</u>
E7	CORE	Approve Quality Assurance (QA) repair forms
E6	CORE	Update Quality Assurance (QA) repair forms
E6	CORE	Verify Quality Assurance (QA) repair forms

Job Title Diesel Engine Systems Technician

Job Code 003179

Job FamilyNOCShort Title (30 Characters)Short Title (14 Characters)Installation, Maintenance, and RepairTBDDIESEL ENGINE SYS TECDIESEL SYS TEC

Occupations

Pay Plan Career Field Other Relationships and Rules

Enlisted EN NECs 4300 Series, 4540, 9534, and other NEC's assigned to the job

Job Description

Quality Control Analysis

Diesel Engine Systems Technicians repair, maintain, and service internal-combustion engines, machinery, and components used aboard Navy ships; provide technical knowledge during the operation and the maintenance of main propulsion diesel engine and reduction gears used for ship propulsion and auxiliary machinery, such as: ships service diesel engine generators, and oil purifiers; provide guidance and technical knowledge in the maintenance of auxiliary machinery outside of main machinery spaces, such as electro-hydraulic steering engines and elevators, refrigeration plants, air conditioning systems, desalinization plants (distilling plants), and compressed gas producing plants; align piping systems for fuel, oil, water, and air; control the operation of ships main propulsion diesel engine, service systems, and the operation of ships service diesel engine generators; clean, adjust, test, and perform other preventive maintenance on ships main propulsion diesel engine, ships service diesel engine generators, and other auxiliary machinery including electro-hydraulic steering units, elevators, winches, pumps and associated valves; maintain refrigeration plants, air conditioning systems, and galley equipment; repair or replace valves, pumps, heat exchangers, compressors, steam turbines, and hydraulic or pneumatic control devices; and make entries in and analyze machinery operating records and reports. Technicians are expected to perform work independently and mentor Diesel Engine Systems Maintainers with very limited supervision.

DoD Relationship O*NET Relationship

 Group Title
 DoD Code
 Occupation Title
 SOC Code
 Job Family

 Auxiliaries
 165200
 Motorboat Mechanics and Service
 49-3051.00
 Installation, Maintenance, and Repair Occupations

Abilities Skills Manual Dexterity Equipment Maintenance **Equipment Selection** Problem Sensitivity Judgment and Decision Making Written Comprehension Repairing Deductive Reasoning Systems Evaluation Information Ordering Troubleshooting Written Expression Reading Comprehension Category Flexibility Writing Mathematical Reasoning Critical Thinking Near Vision

ENGINEERING MANAGEMENT

<u>Paygrade</u> E7	<u>Task Type</u> CORE	<u>Task Statements</u> Maintain Diesel Readiness Systems (DRS)
E5	NON-CORE	Prepare Current Ship's Maintenance Project (CSMP) input
E5	CORE	Prepare fuel, oil, and water reports
E7	CORE	Validate Casualty Reports (CASREP)
E6	CORE	Validate Engineering Operational Sequencing System (EOSS) manuals
E4	CORE	Verify Engineering Operational Sequencing System (EOSS) manuals (Engineering Operational Procedures (EOP) and Engineering Operational Casualty Control (EOCC) procedures)
E5	CORE	Verify engineering records and logs

Oral Comprehension

MECHANICAL MAINTENANCE

<u>Paygrade</u> E4	<u>Task Type</u> CORE	Task Statements Draw fluid samples
E5	CORE	Perform preventative maintenance on machinery clutches and brakes
E4	CORE	Perform preventative maintenance on air dryer systems
E4	CORE	Perform preventative maintenance on auxiliary cooling water systems
E4	CORE	Perform preventative maintenance on Civil Engineering Support Equipment (CESE)
E4	CORE	Perform preventative maintenance on compressed air systems
E4	CORE	Perform preventative maintenance on diaphragm control valves
E4	CORE	Perform preventative maintenance on diesel engines
E4	CORE	Perform preventative maintenance on emergency shutdown devices
E4	CORE	Perform preventative maintenance on engine control air systems
E5	CORE	Perform preventative maintenance on engine control systems
E4	CORE	Perform preventative maintenance on engine fuel oil systems
E4	CORE	Perform preventative maintenance on engine jacket water systems
E4	CORE	Perform preventative maintenance on engine lube oil systems
E4	CORE	Perform preventative maintenance on engine seawater systems
E4	CORE	Perform preventative maintenance on engine starting systems
E4	NON-CORE	Perform preventative maintenance on firemain systems
E4	CORE	Perform preventative maintenance on fuel oil purification systems
E5	NON-CORE	Perform preventative maintenance on fuel oil stripping systems
E4	CORE	Perform preventative maintenance on fuel oil transfer systems
E4	CORE	Perform preventative maintenance on high purity reverse osmosis systems
E4	CORE	Perform preventative maintenance on hot water plants
E5	CORE	Perform preventative maintenance on hydraulic systems (e.g. Control Pitch Propeller (CPP), steering gear, etc.)
E4	CORE	Perform preventative maintenance on jacking gears
E4	CORE	Perform preventative maintenance on lube oil purification systems
E4	CORE	Perform preventative maintenance on lube oil transfer systems
E5	CORE	Perform preventative maintenance on machinery speed limiting devices
E5	CORE	Perform preventative maintenance on machinery transmissions
E5	CORE	Perform preventative maintenance on main propulsion shafts (e.g. jet drive, outdrive, etc.)
E4	NON-CORE	Perform preventative maintenance on oily waste water systems
E4	CORE	Perform preventative maintenance on outboard engines
E4	NON-CORE	Perform preventative maintenance on piping systems (e.g. fluid, air, etc.)
E4	CORE	Perform preventative maintenance on potable water systems
E5	NON-CORE	Perform preventative maintenance on pressure/temperature alarms and set points

<u>Paygrade</u> E4	Task Type CORE	Task Statements Perform preventative maintenance on reducing stations
E4	CORE	Perform preventative maintenance on reverse osmosis systems
E4	NON-CORE	Perform preventative maintenance on secondary drainage systems
E4	CORE	Perform preventative maintenance on system pumps
E4	CORE	Perform preventative maintenance on system strainers (e.g. seawater, fuel oil, etc.)
E5	CORE	Perform preventative maintenance on turbo chargers
E4	CORE	Repair main propulsion shafts (e.g. jet drive, outdrive, etc.)
E5	CORE	Repair air dryer systems
E5	CORE	Repair auxiliary cooling water systems
E4	CORE	Repair Civil Engineering Support Equipment (CESE)
E5	CORE	Repair compressed air systems
E4	CORE	Repair diaphragm control valves
E5	CORE	Repair diesel engines
E4	CORE	Repair emergency shutdown devices
E4	CORE	Repair engine air systems
E5	CORE	Repair engine barring gear components
E4	CORE	Repair engine fuel oil systems
E4	CORE	Repair engine jacket water systems
E4	CORE	Repair engine lube oil systems
E4	CORE	Repair engine seawater systems
E4	CORE	Repair engine starting systems
E5	NON-CORE	Repair firemain systems
E4	CORE	Repair fuel oil purification systems
E4	CORE	Repair fuel oil transfer systems
E4	NON-CORE	Repair heat exchangers
E4	CORE	Repair high purity reverse osmosis systems
E4	CORE	Repair hot water plants
E4	CORE	Repair hydraulic systems
E4	CORE	Repair lube oil purification systems
E4	CORE	Repair lube oil transfer systems
E4	CORE	Repair outboard engines
E4	CORE	Repair potable water systems
E5	NON-CORE	Repair pressure/temperature alarms and set points
E4	CORE	Repair reducing stations
E4	CORE	Repair reverse osmosis systems

<u>Paygrade</u> E5	Task Type CORE	Task Statements Repair system pumps
E4	CORE	Repair system valves
E5	CORE	Repair turbo chargers
E5	NON-CORE	Test tanks and voids air quality
E5	CORE	Troubleshoot main propulsion shafts (e.g. jet drive, outdrive, etc.)
E5	CORE	Troubleshoot Civil Engineering Support Equipment (CESE)
E4	CORE	Troubleshoot compressed air systems
E5	CORE	Troubleshoot diesel engines
E5	CORE	Troubleshoot engine air systems
E5	CORE	Troubleshoot engine starting systems
E5	CORE	Troubleshoot fuel oil purification systems
E4	CORE	Troubleshoot fuel oil transfer systems
E5	CORE	Troubleshoot high purity reverse osmosis systems
E4	CORE	Troubleshoot hot water plants
E5	CORE	Troubleshoot hydraulic systems
E5	CORE	Troubleshoot lube oil purification systems
E4	CORE	Troubleshoot lube oil transfer systems
E6	NON-CORE	Troubleshoot machinery speed limiting devices
E4	CORE	Troubleshoot outboard engines
E5	NON-CORE	Troubleshoot pressure/temperature alarms and set points
E5	CORE	Troubleshoot reverse osmosis systems
E5	CORE	Troubleshoot system pumps
E4	CORE	Troubleshoot system valves
E5	CORE	Troubleshoot turbo chargers
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QUALITY ASSURANCE

Paygrade	Task Type	Task Statements
E7	CORE	Approve Quality Assurance (QA) repair forms
E5	CORE	Prepare Quality Assurance (QA) repair forms
E6	CORE	Update Quality Assurance (QA) repair forms
E6	CORE	Verify Quality Assurance (QA) repair forms

Job Title Diesel Engine Systems Maintainer

Job Code 003653

Job FamilyNOCShort Title (30 Characters)Short Title (14 Characters)Installation, Maintenance, and RepairTBDDIESEL ENGINE SYS MAINTDIESEL SYS MNT

Occupations

Pay PlanCareer FieldOther Relationships and RulesEnlistedENNECs 0121, 4150, 90MS

Job Description

Diesel Engine Systems Maintainers operate and maintain main propulsion diesel engines, steering systems, air compressors, and reduction gears used for ship propulsion and auxiliary machinery, such as: ships service diesel engine generators, pumps, and oil purifiers; maintain auxiliary machinery outside of main machinery spaces, such as: electro-hydraulic steering units and elevators, refrigeration plants, air conditioning systems, desalinization plants (distilling plants), and compressed gas producing plants; align piping systems for fuel, oil, water, and air; control operation of ship main propulsion diesel engine; control operation of ships service diesel engine generators; clean, adjust, test, and perform other preventive maintenance on the ship's internal-combustion engines and other auxiliary machinery including steering engines, elevators, winches, pumps, and associated valves; repair or replace valves, pumps, heat exchangers, compressors, and hydraulic or pneumatic control devices; and make entries in machinery operating records and reports. Maintainers work under the supervision of a mentor while learning a trade or skill.

DoD Relationship O*NET Relationship

Group TitleDoD CodeOccupation TitleSOC CodeJob FamilyAuxiliaries165200Motorboat Mechanics and Service49-3051.00Installation, Maintenance,
and Repair Occupations

Skills Abilities

Facilities Manual M

Equipment MaintenanceManual DexterityEquipment SelectionProblem SensitivityJudgment and Decision MakingWritten ComprehensionRepairingDeductive ReasoningSystems EvaluationInformation Ordering

Monitoring Written Expression
Operation and Control Near Vision

Troubleshooting Visual Color Discrimination

Reading Comprehension Category Flexibility
Writing Multi-limb Coordination

ENGINEERING MANAGEMENT

Paygrade	Task Type	<u>Task Statements</u>
E7	CORE	Maintain Diesel Readiness Systems (DRS)
E5	NON-CORE	Prepare Current Ship's Maintenance Project (CSMP) input
E7	CORE	Validate Casualty Reports (CASREP)
E6	CORE	Validate Engineering Operational Sequencing System (EOSS) manuals
E4	CORE	Verify Engineering Operational Sequencing System (EOSS) manuals (Engineering Operational Procedures (EOP) and Engineering Operational Casualty Control (EOCC) procedures)
E5	CORE	Verify engineering records and logs

MECHANICAL MAINTENANCE

<u>Paygrade</u> E4	<u>Task Type</u> CORE	Task Statements Draw fluid samples
E5	CORE	Inspect fluid samples
E5	CORE	Perform preventative maintenance on machinery clutches and brakes
E4	CORE	Perform preventative maintenance on air dryer systems
E4	CORE	Perform preventative maintenance on auxiliary cooling water systems
E4	CORE	Perform preventative maintenance on Civil Engineering Support Equipment (CESE)
E4	CORE	Perform preventative maintenance on compressed air systems
E4	CORE	Perform preventative maintenance on diaphragm control valves
E4	CORE	Perform preventative maintenance on diesel engines
E4	CORE	Perform preventative maintenance on emergency shutdown devices
E4	CORE	Perform preventative maintenance on engine control air systems
E5	CORE	Perform preventative maintenance on engine control systems
E4	CORE	Perform preventative maintenance on engine fuel oil systems
E4	CORE	Perform preventative maintenance on engine jacket water systems
E4	CORE	Perform preventative maintenance on engine lube oil systems
E4	CORE	Perform preventative maintenance on engine seawater systems
E4	CORE	Perform preventative maintenance on engine starting systems
E4	NON-CORE	Perform preventative maintenance on firemain systems
E4	CORE	Perform preventative maintenance on flange shields
E4	CORE	Perform preventative maintenance on fuel oil purification systems
E5	NON-CORE	Perform preventative maintenance on fuel oil stripping systems
E4	CORE	Perform preventative maintenance on fuel oil transfer systems
E4	CORE	Perform preventative maintenance on high purity reverse osmosis systems
E4	CORE	Perform preventative maintenance on hot water plants
E5	CORE	Perform preventative maintenance on hydraulic systems (e.g. Control Pitch Propeller (CPP), steering gear, etc.)
E4	CORE	Perform preventative maintenance on jacking gears
E4	CORE	Perform preventative maintenance on lube oil purification systems
E4	CORE	Perform preventative maintenance on lube oil transfer systems
E5	CORE	Perform preventative maintenance on machinery speed limiting devices
E5	CORE	Perform preventative maintenance on machinery transmissions
E5	CORE	Perform preventative maintenance on main propulsion shafts (e.g. jet drive, outdrive, etc.)
E4	NON-CORE	Perform preventative maintenance on oily waste water systems
E4	CORE	Perform preventative maintenance on outboard engines
E4	NON-CORE	Perform preventative maintenance on piping systems (e.g. fluid, air, etc.)

<u>Paygrade</u> E4	<u>Task Type</u> CORE	<u>Task Statements</u> Perform preventative maintenance on potable water systems
E5	NON-CORE	Perform preventative maintenance on pressure/temperature alarms and set points
E4	CORE	Perform preventative maintenance on reducing stations
E4	CORE	Perform preventative maintenance on reverse osmosis systems
E4	NON-CORE	Perform preventative maintenance on secondary drainage systems
E4	CORE	Perform preventative maintenance on system pumps
E4	CORE	Perform preventative maintenance on system strainers (e.g. seawater, fuel oil, etc.)
E4	CORE	Perform preventative maintenance on system valves
E4	NON-CORE	Perform preventative maintenance on tanks and voids
E5	CORE	Perform preventative maintenance on turbo chargers
E4	CORE	Repair main propulsion shafts (e.g. jet drive, outdrive, etc.)
E5	CORE	Repair air dryer systems
E5	CORE	Repair auxiliary cooling water systems
E4	CORE	Repair Civil Engineering Support Equipment (CESE)
E5	CORE	Repair compressed air systems
E4	CORE	Repair diaphragm control valves
E5	CORE	Repair diesel engines
E4	CORE	Repair emergency shutdown devices
E4	CORE	Repair engine air systems
E5	CORE	Repair engine barring gear components
E4	CORE	Repair engine fuel oil systems
E4	CORE	Repair engine jacket water systems
E4	CORE	Repair engine lube oil systems
E4	CORE	Repair engine seawater systems
E4	CORE	Repair engine starting systems
E5	NON-CORE	Repair firemain systems
E4	CORE	Repair fuel oil purification systems
E4	CORE	Repair fuel oil transfer systems
E4	NON-CORE	Repair heat exchangers
E4	CORE	Repair high purity reverse osmosis systems
E4	CORE	Repair hot water plants
E4	CORE	Repair hydraulic systems
E4	CORE	Repair lube oil purification systems
E4	CORE	Repair lube oil transfer systems
E4	CORE	Repair outboard engines

<u>Paygrade</u> E4	Task Type CORE	<u>Task Statements</u> Repair potable water systems
E5	NON-CORE	Repair pressure/temperature alarms and set points
E4	CORE	Repair reducing stations
E4	CORE	Repair reverse osmosis systems
E5	CORE	Repair system pumps
E4	CORE	Repair system valves
E5	CORE	Repair turbo chargers
E4	CORE	Replace flange shields
E5	NON-CORE	Test tanks and voids air quality
E5	CORE	Troubleshoot main propulsion shafts (e.g. jet drive, outdrive, etc.)
E5	CORE	Troubleshoot Civil Engineering Support Equipment (CESE)
E4	CORE	Troubleshoot compressed air systems
E5	CORE	Troubleshoot diesel engines
E5	CORE	Troubleshoot engine air systems
E5	CORE	Troubleshoot engine starting systems
E5	CORE	Troubleshoot fuel oil purification systems
E4	CORE	Troubleshoot fuel oil transfer systems
E5	CORE	Troubleshoot high purity reverse osmosis systems
E4	CORE	Troubleshoot hot water plants
E5	CORE	Troubleshoot hydraulic systems
E5	CORE	Troubleshoot lube oil purification systems
E4	CORE	Troubleshoot lube oil transfer systems
E6	NON-CORE	Troubleshoot machinery speed limiting devices
E4	CORE	Troubleshoot outboard engines
E5	NON-CORE	Troubleshoot pressure/temperature alarms and set points
E5	CORE	Troubleshoot reverse osmosis systems
E5	CORE	Troubleshoot system pumps
E4	CORE	Troubleshoot system valves
E5	CORE	Troubleshoot turbo chargers
		MECHANICAL SYSTEMS OPERATIONS

MECHANICAL SYSTEMS OPERATIONS

Paygrade	Task Type	Task Statements
E4	CORE	Align air compressors
E4	CORE	Align air dryer systems
E4	CORE	Align auxiliary cooling water systems
E4	CORE	Align diesel engines
E4	CORE	Align fire pumps
E4	CORE	Align firemain systems
E4	CORE	Align Fuel Oil (FO) and Lube Oil (LO) service systems

MECHANICAL SYSTEMS OPERATIONS (CONT'D)

Paygrade	Task Type	Task Statements
E4	CORE	Align heating systems
E4	CORE	Align hot water plants
E4	CORE	Align main drainage systems
E4	CORE	Align oily waste water systems
E4	CORE	Align potable water system
E4	CORE	Align reducing stations
E4	CORE	Align reverse osmosis system
E4	CORE	Align seawater service strainers
E4	CORE	Align secondary drainage systems
E4	CORE	Align stern tube cooling systems
E4	CORE	Align stripping systems
E4	CORE	Engage jacking gears

QUALITY ASSURANCE

Paygrade	Task Type	Task Statements
E7	CORE	Approve Quality Assurance (QA) repair forms
E5	CORE	Prepare Quality Assurance (QA) repair forms
E6	CORE	Update Quality Assurance (QA) repair forms
E6	CORE	Verify Quality Assurance (QA) repair forms